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Introduction

The Demand Response Aggregator Manager Service is a service provided by Sygration to companies that provide Aggregation services to their own customers. These Aggregators are generally part of an Ontario Power Authority (OPA) program and submit load curtailment quantities based on forecast Ontario energy prices 3-hours ahead.

The Service consists of three major parts:

1. Demand Response Aggregator Manager: Web-based application used by the Aggregator to setup client companies and users,
2. Alert Agent: A program that monitors forecast prices and sends email alerts to the Aggregator and its clients when a forecast price exceeds a customer's threshold (strike price),
3. User Commitment Facility: Web-based application used by the Aggregator's clients to respond to price alerts by submitting load curtailment quantities

Each Aggregator can create accounts for its customers and provide login access to users. If a forecast energy price exceeds a customer's threshold (strike price), the company and/or user will receive an email alert and be directed to the User Commitment Facility web page. The user will enter a quantity (kW) that the company is committing to curtailment for the target hour. The Administrator administrator can view the results of these user entries, and also has the ability to enter a curtailment on behalf of its customer.

Note: Your client's custom Help page will say "*The Demand Response User Commitment Facility is a service provided by (your company name)*".

System Access

Access the Demand Response Aggregator Manager system is restricted to subscribers of the service and is granted by Sygration. It is intended for companies that provide an Aggregation service and are enrolled in a Demand Response Program on behalf of their customers. Once an administrator has been granted access, he may create User accounts for his own customers, which will allow them to log into the User Commitment Facility to view price alerts and enter curtailment responses directly.

Note: Your client's login screen and custom Help page will say "(your custom message here)".

Select Aggregator Screen

The Select Aggregator screen is used when the administrator manages two or more Aggregator accounts. Each Aggregator may have many customers participating in the Demand Response program, however, the administration of the service may be managed by a third-party. This allows that third-party to easily switch between Aggregators.

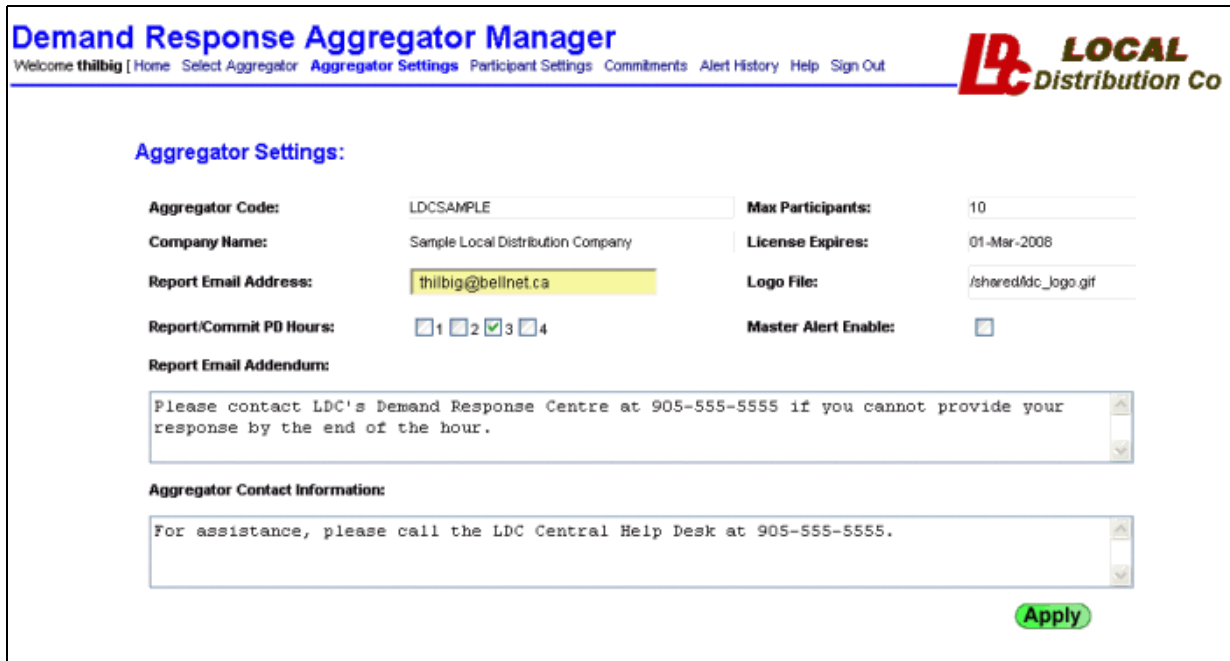


Aggregator ID	Aggregator Name	Expires	Active	Select
ENERSOURCE	Energysource Hydro Mississauga	01-Feb-2008	Y	
LDCSAMPLE	Sample Local Distribution Company	01-Mar-2008	Y	
VERIDIAN	Veridian Corporation	31-Oct-2008	Y	

The screen lists all Aggregators which the administrator has been granted access to. If the Aggregator is Active (as set by Sygration) the administrator can select to work on its participants, events, and responses by selecting the View icon to the right of each company name. Once selected, the context for the application will switch to that Aggregator and only information for that Aggregator will be shown in all remaining windows. The most obvious way of detecting this is the change in the Logo in the upper right corner.

Aggregator Settings Screen

The Aggregator Settings Screen is used by the administrator to view and change the global settings for the Aggregator Manager, and effects the reports that the Aggregator will receive as well as the messages that each Participant will receive.



Edit the fields which are not View-Only and submit the Apply button for the change to take place.

- **Aggregator Code:** (View Only) This is the ID assigned to the Aggregator account by Sygration and used internally by the system.
- **Maximum Participants:** (View Only) This is the maximum number of Participants that the Aggregator account has been licensed to permit. This system will not permit additional Participants once this limit has been reached. Please contact Sygration if you require changes to your license quantity.

- **Company Name:** (View Only) This is the name of the Aggregator organization and will appear on alert messages sent to the Aggregator and its Participants. Please contact Sygration to make changes to this name.
- **License Expires:** (View Only) This is the expiry date for the Aggregation Manager license. You will not be permitted to access the Aggregator Manager beyond this date, nor will you or your Participants receive alert messages beyond this date.
- **Report Email Address:** This is the email address that the Aggregator wishes to receive Aggregator Reports. Email addresses must be valid format (i.e. name@company.com). Multiple addresses are permitted by separating each address by a comma (i.e. john@company.com,mary@company.com).
- **Logo File:** (View Only) The source filename that is placed at the top right of all Aggregator Manager screens. Unless otherwise arranged, the default Sygration logo is used.
- **Report/Commit PD Hours:** The Aggregator may select up to four predispatch hours (hours beyond the current hour) indicating to receive an Aggregator Report for these hours, and to allow him to further enter Commitment Quantities (kW) in the Commitments screen. The Participant settings allow alerts to be generated for any of the four predispatch hours, however, this setting allows to Aggregator to ignore those predispatch hours they are not interested. Currently, most Ontario Demand Response programs only monitor Predispatch Hour 3, so this is likely the only hour the Aggregator will wish to receive reports on.
- **Master Alert Enable:** Enable and Disable all alert generation and emailing for your Aggregator accounts using this setting. This will prevent any alerts being sent to the Aggregator and Participants. After re-enabling, the current dispatch hour may need to end before future the alert engine monitors for future predispatch hours.
- **Report Email Addendum:** This is an optional message that the Aggregator can set and will be included at the end of any alert email messages that are sent to the Participants. If you wish to include links to other internet sites, you should include the web address (<http://www.website.com>) and let the Participant's email client convert this into a hyperlink.
- **Aggregator Contact Information:** This is an optional contact information that should be entered that will allow Users to contact the Aggregator. The information entered here will be shown on the User Commitment Facility login screen and Help screen.

Participant Settings Screen

The Participant Settings Screen is used to create and update information on each Participant Contact that the Aggregator is providing a service to. The information includes company and contact names, email addresses, the strike price which an alert will be generator at, and days/hours which the Participant wants to participate in the demand response program.

Demand Response Aggregator Manager

Welcome thibig | Home | Select Aggregator | Aggregator Settings | **Participant Settings** | Commitments | Alert History | Help | Sign Out



Participant Settings

Enter the Details on the Company and Users that will receive Email Alerts. You may also create User accounts for one or more contacts within a company. Alerts are based on Ontario Energy Predispatch price.

Enabled Disabled

Company: Quality Manufacturing Inc.

Company ID: QUALITY

Default Email (Verify)

Energy Strike Price \$: 50.00

Predispatch Hours: 1 2 3 4

Comments / Info: Capacity includes 100KW of Diesel generation

DR Capacity (KW): 200
From Hour: 7 To: 20 (EST)

Day of Week to Monitor: Mon Tue Wed Thu Fri Sat Sun

User ID: handersmith [Change Pass](#)

Access: Enabled Disabled

Full Name: Tom Handersmith Phone: 905-555-1212

Email (Verify): thandersmith@quality.com

Last updated by thibig 22-Jan-2008 11:37:50


LDCSAMPLE Participant List

Enbl	Company	Threshold \$	Capacity	PD	Monitoring Days	Hours	User Name	Phone	Email	Edit/Del	
<input type="checkbox"/>	American Automotive Association	140.00	300	3	Mon Tue Wed Thu	6-20	Bob Automobile	905-555-6666	(thibig@yahoo.com)		
	Terry Username							705-555-4444	aaa@hotmail.com		
<input checked="" type="checkbox"/>	Atlantic Grocery	85.00	300	3	Mon Tue Wed Thu Fri Sat Sun	10-21	Atlanta Grocery	555-555-5555	atlantic@yahoo.com		
<input checked="" type="checkbox"/>	Differs Cold Storage	1.42	110	3	Mon Tue Wed Thu Fri Sat Sun	1-24	Jane Differ	555-555-5555	jdiffer@hotmail.com		
	Roger Differ							555-555-5555	rdiffer@belnet.ca		
<input checked="" type="checkbox"/>	FIRECO Inc.	99.00	200	2 3	Mon Tue Wed Thu Fri	1-24	Chief Wiggins	905-555-6666	wiggys@fireco.com		
<input type="checkbox"/>	New Manufacturing Corp	150.42	75	3	Mon Tue Wed Thu Fri Sat Sun	1-24	Newman Newmancorp	555-555-5555	newman@belnet.ca		
<input checked="" type="checkbox"/>	Quality Manufacturing Inc.	50.00	200	3	Mon Tue Wed Thu Fri	7-20	Tom Handersmith	905-555-1212	thandersmith@quality.com		
<input checked="" type="checkbox"/>	Reco Plastics	38.00	200	2 3	Mon Tue Wed Thu Fri	8-22			(reco@yahoo.com)		

Create a New Participant Company by selecting the button and then entering the information about the Participant and its User's account.



- **Enabled/Disabled** button is used to allow or deny the Participant access to the system
- **Company ID** is a short name used to identify the Participant (example ACME)
- **Company** is the full name of the company (example Acme Cold Storage Ltd.)
- **Default Email:** is the email address which will receive the Alerts. This is optional if at least one User email (below) will be provided.
- **Energy Strike Price** is energy price threshold which will generate an alert whenever the forecast price meets or exceeds it.
- **Predispatch Hours** is the hours looking forward for which the forecast energy price is assessed. Normally, demand response programs base the threshold on the Predispatch Hour 3 price.
- **Comments / Info** is information regarding the Participant that you find useful.
- **DR Capacity** is the kW quantity that your company has told the Aggregator it is capable of curtailing should the forecast energy price exceed your Strike Price.
- **Days of Week to Monitor** are the selected days which the Participant wishes to participate in the Demand Response program. Alerts will be generated only for selected days.
- **From/To Hour** is the hours range during the day which the Participant wishes to participate in the Demand Response program. These hours are the "Hour Ending" nomenclature used by the IESO and are in Eastern Standard Time.
- **User ID** is a login ID (account name) which will be used by the representative of the participant when responding to events (example, jsmith).
- **Access Enabled / Disabled** will allow or deny the user to access his company's User Response Facility. Disabled User accounts will also not receive email Alerts.
- **Full Name** is the full name of the User (example, John Smith)
- **Phone** is the phone number of the user (example 416-555-1212)
- **Email** is the optional email address of the user (example jsmith@acme.com). If provided, that user will receive Email Alerts



from the Demand Response Agent, based on the Company's Energy Strike Price and forecast price.


After entering all of the above information, you can save the new participant and user by selecting the Apply  button. Once the information has been selected, an additional link will be provided to allow you to set or change the user's password.



- **Change Password.** The [Change Pass](#) link will appear on the form next to the User ID after you have created a new user. Click on this link to bring up a small dialog window for changing the user's password.
- **Verify Email.** The [Verify](#) link is available for each Email input. It allows you to check to Email information for accuracy and send a test email message to the User.

The system ensures each User ID is unique across all Sygration applications, so you may find that a desired User ID is already in use by another application and is not available to you. If you receive an message indicating the new User ID is already in use, you should select another (perhaps slightly different) User ID. If you are sure the conflicting ID is for the same person, who perhaps received a separate Sygration account, contact Sygration for linking access to your application.

Adding another User ID to a Participant Company can be done if you need to grant access to multiple people associated to one Participant. Start by selecting the Clear  button to clear the input screen. Type in the exact Company ID of the participant you wish to add another user ID. If entered correctly (identical to another Company ID), the other information will be automatically completed with the along with the Company Information. You must then enter new User information, phone number and email (if you wish him to receive Alerts). If you change any company information or settings, when saving will overwrite the previous information. When you are done, select the Apply  button

Edit a Participant Company or User by locating the Participant and User in the in the Participant List (table) and selecting the Edit  button to the right of the row. This will load the participant and user record into the edit section of the page, where you can change any attributes. If you have multiple users associated with the company, any changes to the company information will effect all users. When you are done, select the Apply  button.

Delete a Participant and User by locating the Participant and User in the in the Participant List (table) and selecting the Trash Can  icon. If other users are associated with the participant, then only the selected user record will be deleted. If the selected user was the only (or last) user associated with the participant, then both user and participant records will be deleted. A confirmation window will appear in either case to ensure you want to carry out the deletion.

Delete a User (not the Participant) is done automatically when you click on the Trash Can  icon for the Participant, but there is one or more other User records in place for the same Participant. For example, if a Participant has 3 Users and you delete one record, then the Participant and two other User records will remain. If only one record remains for the Participant and User and you only wish to delete the User portion, then select the record for editing and erase all User information (User ID, Name, Email) and select the Apply  button.

Note: If you delete a participant that had previously entered curtailment responses, then the responses will remain and the company still remains but is hidden from view. Contact Sygration if you require the record to be completely removed.

Commitments Screen

The Commitments Screen is used by the Aggregator administrator to track curtailment commitments entered by each Participant in response to an Alert. The administrator can also enter the commitment quantity on behalf of the Participant using this screen. The screen consists of three areas:

1. Latest forecast energy prices for the current day and next day (when available). Historical prices for the current day's hours are in black, while the forecast prices are in blue. The forecast prices are revised hourly, so a specific hour's price will be updated many times and may be different than the original price when the alert was generated.
2. Participant Commitments area where individual commitment quantities (kW) can be viewed or entered on behalf of the Participant . While this area also shows most of the information for a Participant, all but the DR Commitment fields are view only.

3. Alerts for Today, showing all alerts for the current day, along with the total kW of both Capacity and Committed energy for each alert hour. Participants that have entered a value in the User Commitment Facility will have a green ✓ checkmark on the left side, while those Participants that have not entered a commitment will have a red ✗.

Demand Response Aggregator Manager

Welcome thibig | Home Select Aggregator Aggregator Settings Participant Settings **Commitments** Alert History Help Sign Out

Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
22-Jan-2008	\$ 36.80	36.86	42.16	35.49	39.61	38.49	50.31	78.47	63.22	59.99	39.22	43.71	36.95	62.08	59.54	65.00	72.09	79.48	79.46	79.39	72.08	57.00	57.00	36.46
23-Jan-2008	\$ 13.72	13.72	13.72	13.72	13.72	26.33	31.84	32.43	31.91	30.70	29.89	29.50	29.89	29.07	29.07	29.00	31.08	33.61	33.84	33.19	32.15	30.87	29.78	28.67

Participant Commitments:
Select a Participant from the list of Current Alerts, then enter the kW Quantity of Demand Response that the Participant is Committing for the Alert.

Company:	Differs Cold Storage	Enabled:	<input type="checkbox"/> Yes
Default Email:	thibig@yahoo.com	Hours Monitored:	Mon Tue Wed Thu Fri Sat Sun HE1-24
Alert Hour:	22-Jan-2008 HE17	Predispatch Hour:	<input type="text" value="3"/>
Forecast Price:	\$72.09	DR Capacity (kW):	<input type="text" value="110"/>
Strike Price:	\$1.42	DR Commitment (kW):	<input style="border: 2px solid blue;" type="text" value="95"/>
Information:	Phone 905-733-2344 Cell 416-544-2442		

Curtailment submitted by jdiffer 22-Jan-2008 13:45:09

Alert Status: OPEN

Alerts for Today:

Status	Alert Hour / Company & Contact Information	Price \$	Capacity	Commit	Edit
OPEN	22-Jan-2008 HE17 (3-Hour Predispatch @ 22-Jan-2008 13:15:01)	72.09			
✓	Differs Cold Storage	1.42	110	95	
✓	Quality Manufacturing Inc.	50.00	200	180	
✓	Reco Plastics	38.00	200	150	
✓	Sofco Manufacturing	70.00	200	200	
			710	625	
CLOSED	22-Jan-2008 HE16 (3-Hour Predispatch @ 22-Jan-2008 12:15:02)	72.08			
✓	Differs Cold Storage	1.42	110	90	
✗	Quality Manufacturing Inc.	50.00	200		
✓	Reco Plastics	38.00	200	175	
✓	Sofco Manufacturing	70.00	200	200	
			710	465	

To enter the quantity of Committed Energy on behalf of the Participant, select the Edit icon first to copy the Participant information into the Commitments Area. The hour which the alert applies will also be high-lighted in the top energy prices area. While each Participant can receive alerts for multiple Predispatch hours (1 through 4), only those Predispatch hours selected in the Aggregator Settings section (Report/Commitment PD Hours) will be included in the list.

Participant Commitment Data Fields:

- **Company:** (View Only) The name of the Participant company or organization that is participating in the demand response program.
- **Enabled:** (View Only) Indicates the current state of the Participant. Only Enabled Participants can receive alerts, however the Participant can be disabled after the Alert has been sent.
- **Default Email:** (View Only) The default email which received the email alert for the Participant. This may be empty if other User accounts have Email addresses assigned.
- **Hours Monitored:** (View Only) The Days of the Week and Hours range which are being monitored for price alerts.
- **Alert Hour:** (View Only) The Date and Hour (EST) of the forecasted hour the exceeds the Participant's Strike Price.
- **Predispatch Hour:** (View Only) The number of hours (1, 2, 3 or 4) past the current dispatch hour that the alert applies. Common Demand Response Programs use the 3rd Predispatch Hour.
- **Forecast Price:** (View Only) The IESO forecast energy price at the time of the Alert for the target Predispatch Hour.
- **DR Capacity (kW):** (View Only) This is the maximum registered Demand Response Capacity (in kW) that each Participant may be willing to temporarily shed load in response to high energy prices. The actual amount that the Participant Commits to for a specific alert may vary.
- **Strike Price:** (View Only) The Strike Price (\$/MWh) that the forecast energy price must equal or exceed for the agent to generate an alert.

- **DR Commitment (kW):** The amount of Energy which the Participant has committed to reducing load (or adding generation) for this specific Alert.
- **Information:** (View Only) Information from the Participant Settings Screen, placed here for quick reference by the Administrator.
- **Curtailment time** (View Only) The User ID of the person who submitted the commitment and the timestamp is shown when a commitment has been submitted.

Alert History Screen

The Alert History screen lists all Alerts sent to the Participants, sorted by the Participant name and with the newest alerts at the top. By default, only alerts within the last 2 days are shown, however, you may view additional days by selecting the 2 day, 7 day, 2 week, 1 month, 2 month and 1 year radio button at the top of the list.

Company	Alert Date	Hour	PD	Strike \$	Frct \$	HOEP \$	Commit kW	Updated Time & User	Status
Atlantic Grocery									
	22-Jan-2008	HE 11	3	85.00	99.40	39.22			Expired
	21-Jan-2008	HE 21	3	85.00	109.48	103.23			Expired
	21-Jan-2008	HE 20	3	85.00	130.70	102.49			Expired
	21-Jan-2008	HE 19	3	85.00	150.00	102.87			Expired
	21-Jan-2008	HE 18	3	85.00	134.39	101.63	299	21-Jan-2008 14:17 thilbig	Complete
	21-Jan-2008	HE 17	3	85.00	109.48	66.68	290	21-Jan-2008 13:42 thilbig	Complete
	21-Jan-2008	HE 16	3	85.00	109.00	75.62			Expired
Differs Cold Storage									
	22-Jan-2008	HE 17	3	1.42	72.09		95	22-Jan-2008 13:45 jdirfer	Complete
	22-Jan-2008	HE 16	3	1.42	72.08		90	22-Jan-2008 13:45 thilbig	Complete
	22-Jan-2008	HE 15	3	1.42	62.09				Expired
	22-Jan-2008	HE 14	3	1.42	72.08	59.81			Expired
	22-Jan-2008	HE 13	3	1.42	59.54	36.95			Expired
	22-Jan-2008	HE 12	3	1.42	72.09	43.71			Expired
	22-Jan-2008	HE 11	3	1.42	99.40	39.22			Expired

Alerts are shown only for the Predispatch hours which the Aggregator is monitoring (set in the Aggregator Settings Screen). While the Participant may have received email alerts for other Predispatch Hours, these are not included in the list.

Alert History Table Fields:

- **Company** The name of the Participant company or organization that is participating in the demand response program.
- **Alert Date - Hour - PD** The Date, Hour (1-24) and Predispatch (look-ahead hours) of the forecast energy price which the alert was based on.
- **Strike \$** The Energy Strike Price requested by the Participant. Forecast prices must meet or exceed this value for an alert to be generated.
- **Frct \$** The forecasted (predispatch) price for energy at the time of the alert. The forecast is updated every hour, so subsequent hours will likely have a different forecast for this hour.
- **HOEP \$** The Hourly Ontario Energy Price. This is the historical price for energy and will only be included in the list after the alert hour has past.
- **Commit KW** The amount of Energy which the Participant has committed to reducing load (or adding generation) for the Alert.
- **Update Time & User** Timestamp and User ID when the Commitment was entered or last updated.
- **Status** The status of the alert event, determined by the Alert Agent as such:
 - Open - Waiting - New Alert Hour has been generated and is waiting for the Participant (or Administrator) to

respond.

- Complete - A commitment value has been received.
- Expired - The event has elapsed without any commitment value being received.

Terms & Conditions

BY USING THE SYGRATION DEMAND RESPONSE AGGREGATOR MANAGER SERVICE YOU AGREE TO THE FOLLOWING TERMS:

THE SERVICE IS LICENSED TO INDIVIDUAL ORGANIZATIONS FOR USE BY THAT ORGANIZATION'S STAFF AND ARE NOT TO BE ACCESSED BY OTHER ORGANIZATIONS OR INDIVIDUALS THAT ARE OUTSIDE OF THE CONTROL OF THAT LICENSED ORGANIZATION. ALL SOFTWARE IS COPYRIGHT PROTECTED BY SYGRATION. YOU MAY NOT REVERSE ENGINEER, DECOMPILE, DISASSEMBLE, OR CREATE DERIVATIVE WORKS BASED ON THE SOFTWARE OR PART THEREOF.

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